COURSE DESCRIPTION CARD - SYLLABUS

Course name

Podstawy technologii elektrochemiczne (Fundamentals of electrochemical technology)

Course

Field of study

Technologia chemiczna (Chemical Technology)

Year/Semester

4/8

Area of study (specialization)

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

Number of hours

Lecture

20

Laboratory classes

20

Other (e.g. online)

Tutorials

Projects/seminars

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

dr hab. Piotr Krawczyk, prof. PP

Responsible for the course/lecturer:

Prerequisites

Student has a ordered knowledge of mathematics and physical chemistry and he also has ability to use the basic techniques in a laboratory scale.

Course objective

The aim of the course is to familiarize students with an overview of technical electrochemistry methods and develop skills for their practical application.

Course-related learning outcomes

Knowledge

1. The knowledge in the field of basics of electrochemical processes –[K_W03, K_W08, K_W10],

2. The knowledge in the field of various electrochemical technologies –[K_W12, K_W13, K_W15].

Skills

1. The student has the ability to plan the technological processes, the selection of measurement techniques, he also has ability to define the appearing chemical reactions and the yielded products – [K_U16, K_U18, K_U20].

Social competences

1. The student understands the need for self-study and improvement of their professional competence –[K_K01],

2. Student can act and cooperate in the group –[K_K03].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Laboratory assessment on the basis of the current work during the laboratory and the written tests.

The written test.

Programme content

1. The principles of electrochemical processes.

2. Electrodes balances.

3. The mechanisms of electrode processes.

4. The selected electrochemical processes used for synthesis of chemical compounds and environmental protection.

5. The selected issues in the field of generation, conversion and storage of electrical energy in chemical power sources.

Teaching methods

Lecture, problem lecture, explanation, didactic discussion, classes, project method, laboratory exercises

Bibliography

Basic

1. A. Kisza – Elektrochemia cz. I i II (Jonika i Elektrodyka) WNT, W-wa, 2001,

2. R. Dylewski, W. Gniot, M. Gonet, Elektrochemia przemysłowa, Wyd. Politechniki Śląskiej, 1999,

3. A. Czerwiński, Ogniwa, akumulatory, baterie, WNT, W-wa, 1999,

4. A. Ciszewski, Technologia chemiczna. Procesy elektrochemiczne, Wyd. Politechniki Poznańskiej, 2008.

Additional

1. A.V. da Rosa, Fundamentals of Renewable Energy Processes, Elsevier/Academic Press, 1990,

2. H. Scholl, T. Błaszczyk, P. Krzyczmonik, Elektrochemia, Wyd. Uniwersytetu Łódzkiego, 1998.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	42	1,5
Student's own work (literature studies, preparation for laboratory classes, preparation for tests) [1]	33	1,5

[1] delete or add other activities as appropriate